

UNIT 4
POLYNOMIALS
DAY 1

Identifying & Classifying Polynomials

Def:

term- is the product of a real # and one or more variables raised to powers.

coefficient- is the real number of a term.

polynomial- is a term or a finite sum of terms, with only nonnegative integer exponents permitted on the variables.

nonpolynomial examples:

EXAMPLES

$$6x^2y - 6xy^2 + 12xy$$

$$25x^2 - 4$$

$$-\sqrt{2}x^3$$

$$3$$

$$x^4y^5$$

NON-EXAMPLES

$$2x^2 - xy^{-2}$$

$$-5x^{-1}$$

$$\frac{3}{x} + 2$$

Naming a polynomial by # of terms

<u>#of terms</u>	<u>Name</u>	<u>Example</u>
1	Monomial	$-3x^2y^3$
2	Binomial	$2x^2-7y$
3	Trinomial	$3a^2-4ab+8b^2$
4	4 term polynomial	$4y^3+y^2-2y+7$
5	5 term polynomial	$2x^3-2x+6y^2+3y+7$

degree of a term- is the sum of all the exponents appearing on the variables in the term.

Ex: $x^4y^5 - 4x^3y^2$

degree of a polynomial- is the degree of the largest term with in the polynomial.

Ex:

$$3x^2y - 6xy^2 + 12xy \quad x^6y - 4x^3y^2 - x^2 + 7 \quad 25x^2 - 4$$

Naming by degree of the polynomial:

*names may only be used when the polynomial contains one variable

<u>Degree</u>	<u>Name</u>	<u>Example</u>
1	Linear	$3x+4$
2	Quadratic	$3a^2 - a + 5$
3	Cubic	$4y^3 - y + 12$
4	Quartic	$2x^4 - 3x^2 + 9$
5	Quintic	$x^5 - 4x^3 - x + 7$